NATURAL RESOURCES CONSERVATION SERVICE

CONSTRUCTION SPECIFICATIONS

IRRIGATION SYSTEM, MICROIRRIGATION

1. Scope

The work shall consist of the necessary construction operations and furnishing of materials so that all requirements for proper installation shall be met with the system operating as planned. The designer of the microirrigation system (consulting engineer, equipment vendor, or others) shall furnish the landowner with the complete plans and design covering all components of the system. The plans and design shall contain sufficient detail to allow it to be installed by someone unfamiliar with the job, and the installation is to be checked for conformance with the plans. The plans shall specify types, grades, quality, sizes, and construction materials of all equipment and appurtenances included in the system design.

All permits, licenses, easements, and other requirements required by law shall be obtained before construction begins.

Construction shall be to the lines and grades specified by the design and shown on the plans or as staked in the field. Equipment and materials shall be of types, sizes, and quantities specified in the plans and specifications.

2. Location

The microirrigation system shall be located as shown on the construction plans or as staked in the field.

3. Materials

Applicators (emitters, orifices, perforated tubing, tapes, bubblers, spray jets, micro-sprinklers, etc.) These applicators shall be installed as recommended by the manufacturer. The designer shall provide the manufacturer's performance specifications of the applicators installed in the system to the landowner prior to installation. The applicators shall be manufactured from materials resistant to the normal effects of water, weather, sun, and commonly injected agricultural chemicals used for cleaning, chemigation, and water amendments. Applicators placed beneath the ground surface will be placed deep enough to protect them from normal farming operations. Spray-type emitters will be installed in such a manner that the wetted area (P_w) used in the design can be obtained.

Pumps, power units, and filters. These shall be set on a firm base; be placed in proper alignment; and meet the power, capacity, and pressure requirements specified. All pertinent safety codes and manufacturer’s recommendations shall be met for the type of equipment installed.

Pipe. The manufacturer’s performance data will be provided by the designer for the pipe (tubing) used as laterals in the system. The manufacturer's data must include the maximum allowable operating pressure and inside diameter. This pipe and tubing shall be installed as recommended by the manufacturer. A copy of the manufacturer's data shall be provided to the inspector as requested prior to installation.

Joints and connections. All joints and connections involved in the installation of laterals to the manifold lines shall be made in accordance with the pipe manufacturer's recommendations and shall be constructed to withstand the maximum design working pressure for the pipelines without leakage. Connections of applicators to the lateral lines shall be in accordance with the manufacturer's recommendations.

Valves. All valves which must pass the design discharge should be equal to the size of pipe but shall not be smaller than the size recommended by the manufacturer. The manufacturer's performance data and specifications for valves shall be provided to the inspector by the designer when requested. The valves

to be installed shall be the type specified and manufactured from the material as specified. Valves shall be installed according to the manufacturer's recommendations to withstand the maximum design working pressure without damage or leakage.

Injectors (chemical, fertilizer, or pesticide) and automatic operating equipment (timer). Where automatic equipment or injectors (chemical, fertilizer, or pesticide) have been planned for the system, they shall be located adjacent to the pump and power unit and placed in accordance with manufacturer's recommendation. Back-flow prevention devices shall be provided, as required by state law, when chemicals are injected.

4. Testing the System

The system shall be thoroughly and completely tested at the design pressure for strength, proper functioning, and leakage. Any leaks shall be repaired, and the system retested.

During the initial start-up after the system has been installed, the manifold and lateral lines shall be flushed for a sufficient time to remove any sediment or foreign material from each line prior to the placement of end plugs.

The system shall be tested to ensure that it functions properly at design capacity and that the variation in pressure or discharge rate is within the allowable range specified. There shall be no objectionable flow conditions at or below design capacity, and all appurtenances shall perform properly.

5. Measurement

Measurement will consist of determining the acres of microirrigation installed to determine the feet of lateral line installed at the average width between laterals. Components of main, manifold, and flush line length shall be measured and other components identified.

6. Construction Details